DEPARTMENT OF
COMMUNITY SERVICES

April 30, 2015

ITEM NO. 29
FILE NO. 1109

RECEIVED
APR - 1 2016
TOWN CLERK/TOWN COUNCIL OFFICE
West Hartford, CT

To: Town Council

From: Todd Dumais, Town Planner

**SUBJECT: TREE REPLACEMENT
MEMORIAL, ISHAM & RAYMOND ROAD
SPECIAL DEVELOPMENT DISTRICT ADMINISTRATIVE
AMENDMENT (SDD #113-R1-16)**

I have received an administrative amendment request from John Philips, Director of Public Works and West Hartford Tree Warden, for revisions to the approved Special Development District plan (SDD #113) located within the street right of way along Memorial, Isham and Raymond Road. The request is for minor modification to the size of the approved plantings. In this instance, the replacement of a total of 12 streets trees, 4 Chinese Elms along Raymond Road and 8 London Plane trees located at the corners of Isham and Memorial.

Attached are a narrative and supporting plans which further explain the proposal.

The requested modifications fall within the approval powers contained in ***Section 177-44C (9)*** of the Code of Ordinances. This section allows the Town Planner to approve ***minor*** adjustments to limited plan elements of an SDD, in this instance, to ***Section 177-44C (9)(g)*** Any adjustment nessacry to conform to conditions of approval imposed by other federal, state or local agencies which may have jurisdiction with respect to any aspect of the property that is subject to the SDD plan. In addition, this request is also being made to address the safety concerns of the Tree Warden and it is my opinion that the plan, as modified, is in accordance with the purpose of the original SDD approved by the Town Council.

The purpose of the memo is to ***notify*** the Town Council of my intention to approve the requested modifications. This notice of approval is given with the understanding that such action will not be effective until the day following the next regular meeting of the Town Council and that such notice of approval is given 10 days prior to such Council meeting. This matter would therefore appear as a regular agenda item on the Regular Town Council Meeting, ***Tuesday, April 12, 2016***. It is understood that the Town Council may reject my approval decision and direct that the modifications requested be considered under the provisions of ***Section 177-44C (9)*** which would require a complete application for amendment and requisite public hearing.

C: Ronald Van Winkle, Town Manager
Joseph O'Brien, Corporation Counsel
Mark McGovern, Director of Community Services
Patrick Alair, Corporation Counsel
Subject SDD File

SD/TPZ/SDD/Memeorial_Isham_SDD#113_r1_16_Apr16

TOWN OF WEST HARTFORD

TOWN OF WEST HARTFORD
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DEPARTMENT OF PUBLIC WORKS

RECEIVED

APR - 1 2016

TOWN CLERK/TOWN COUNCIL OFFICE
West Hartford, CT

To: Todd Dumais, Town Planner

Re: Tree replacement in Blue Back Square

March 29, 2016

The Town of West Hartford Blue Back Square District currently has four (4) Chinese Elms and eight (8) London Planetrees in need of replacement. The Chinese Elms are on the West side of Raymond Road, North of Memorial Road. London Planetrees are located on four corners, at the intersection of Isham Road and Memorial Road (see attached map). These trees were on a decline over the course of nine years due to a number of causal factors:

- The trees were planted as 6 to 7 inch caliper with 60 inch diameter rootball. A number of larger roots were destroyed during the process of transplanting. As a result, the trees were stressed from the initial transplant and were never acclimated to their growing environment.
- The trees were planted too deep, preventing oxygen from reaching the root tissues. In addition, the trunk tissues were exposed to excessive moisture. The trees were literally suffocating from deep planting.
- Over the years, the London Plantetrees were exposed to anthracnose disease that caused dark lesions on their leaves and stems, resulting in significant defoliation. They were treated for the fungal disease. However, the on-going stressed conditions prevent the London Plane from fully recover.
- In 2015, Southern New England experienced long stretches of dry warm weather. The lack of rainfall presented additional strain to the already stressed group of trees in Blue Back Square.

The Chinese Elms and London Planetrees had expired. They are now considered hazardous to the general public with fallen branches. It is within our plans to replace the trees this spring. As the Town's Tree Warden, I propose for the replacements to be at 4 inch caliper and 48 inch diameter rootball. Smaller trees tend to recover better during the transplanting process as fewer large roots would be damaged while being displaced.

As the Tree Warden, I respectfully request for an amendment to be added to the Special Services District for the replacement trees to be at 4 inch caliper. I strongly believe this recommendation will correct the problems highlighted and identified by Richter & Cegan and SaveATree. Enclosed is the professional recommendation from Richter & Cegan, retained Landscape Architect and Urban Designing firm and from SaveATree, to support the argument. We schedule the transplant to take place in April 2016 and timing is of the essence.

Best Regards,

John Phillips, Director
Town of West Hartford
Department of Public Works

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Town of West Hartford, CT

April 1, 2016

Tree Replacement Location Map

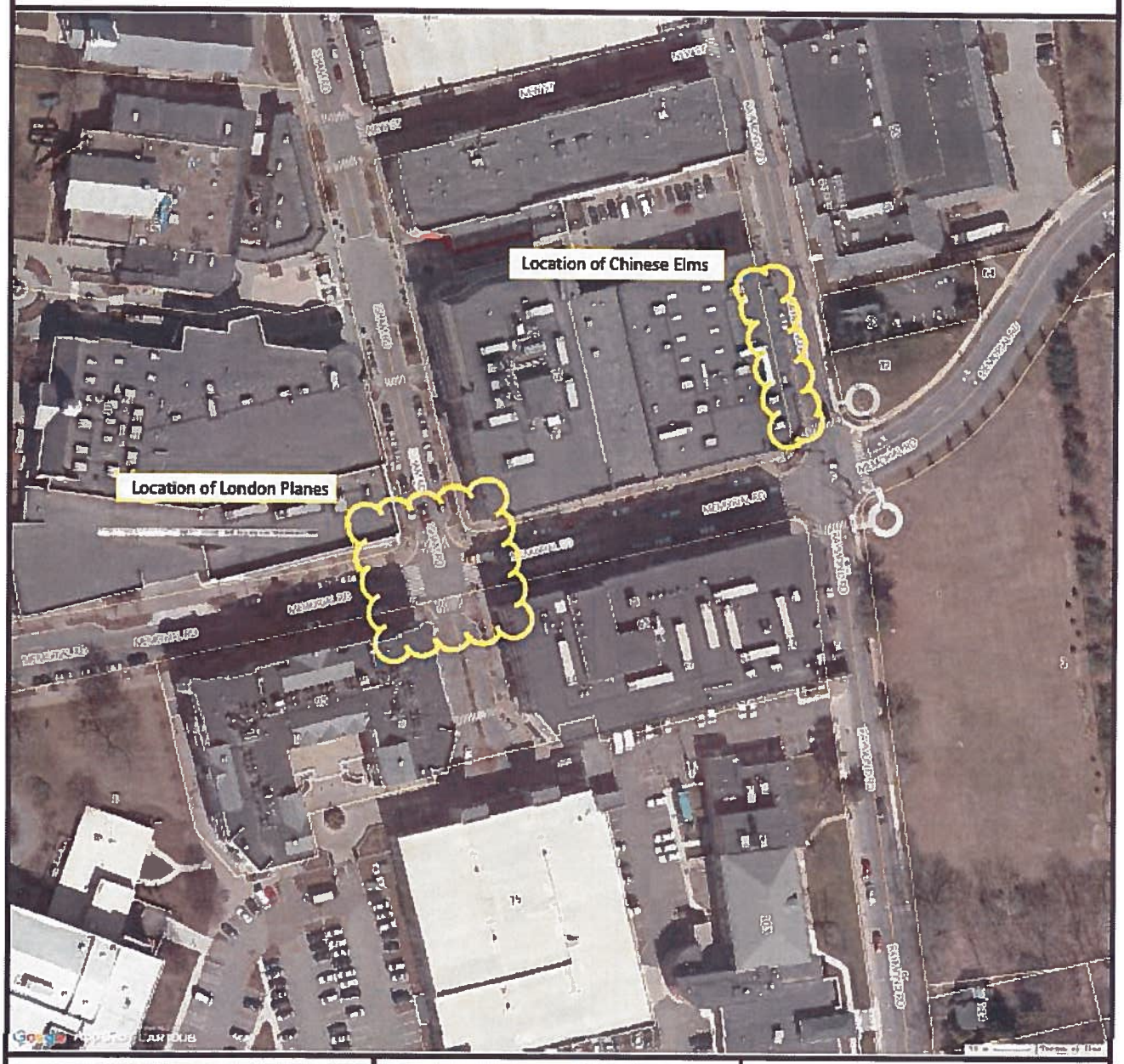


Image of Expired London Planes

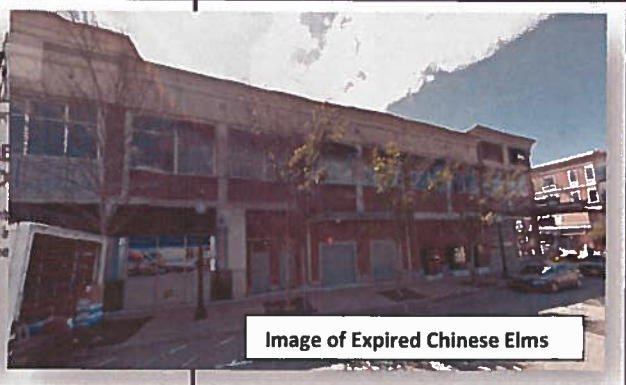
Image of Expired Chinese Elms

Richter & Cegan Inc.

Landscape Architects and Urban Designers
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8B Canal Court
Avon, Connecticut 06001
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fax 860/678-8934
www.richtercegan.com

March 10, 2016

Brooke Nelson, Operations Manager
Town of West Hartford
Municipal Parking Division
17 Isham Road
West Hartford, CT 06107

Re: **Town Center Street Trees**
West Hartford, Connecticut

Dear Brooke:

It is our recommendation that the dead Planetrees and Chinese Elms at Blue Back Square be replaced with somewhat smaller size trees than those originally installed. First, because smaller trees in general recover better from transplanting than larger trees. And secondly, because we believe a contributing factor to their early mortality is that their tree pits are too small to accommodate their large rootballs. We recommend 4 inch caliper trees with a 42 inch diameter rootball instead of 6 inch caliper trees with a 60 inch diameter rootball, which will allow more volume for good planting soil around the rootball and will also minimize disruption to the pavement and improvements surrounding the trees.

Sincerely,

Michael A. Cegan, ASLA, APA
Richter & Cegan Inc.

West Hartford Town Center Street Trees
Assessment and Recommendations

Prepared for

Richter & Cegan Inc.
Landscape & Urban Planners
8b Canal Court, Box 567, Avon, CT 06001

SavATree Consulting Group
550 Bedford Road
Bedford Hills, NY 10507
914-241-4999
www.savatree.com

Prepared by

Allan Fenner
Consulting Arborist
ISA # NE-6503-A
CT S-4894
November 2015

Summary

In fall of 2015, street trees located in Town Center and Blue Back Square in the town of West Hartford were evaluated on the basis of general health condition, tree size and relative size of the tree pit opening. Trees located within the Town Center consisted mainly of a thornless cultivar of Honeylocust; (Gleditsia triacanthos). The majority of the Honeylocust was found to be in fair condition and varied in diameter from 10" to 22" averaging approximately 15". The few trees that were in poor condition exhibited secondary stress factors including tip die back and fruiting bodies of the fungus *Ganoderma lucidum,* attacking the lower heartwood of these trees. Advanced stages of this fungus can kill a tree or cause a loss of its structural integrity prior to death. The causal factor of the secondary stress is due to mechanical damage of the roots or trunk; highly compacted soils and associated limited water and nutrient availability and limited soil maintenance. The chronic effect of these conditions can ultimately lead to acute symptoms as well. Tree pit size varied somewhat randomly with combinations of length and width from 3' x 3' to 5' x 8' and some larger in Blue Back Square. It appeared in some areas that concrete pavers were adapted to accommodate the increase of tree diameter and exposed roots in some instances in an attempt to limit associated lifting of the pavement. Distance from buildings and other infrastructure were also variable. Site lines from corners and vehicle intersections including curb aprons were consistent and appeared to provide a clear view for accessibility and were not limited by tree canopy. Defects in trees were attributed to mainly mechanical injuries sustained possibly during seasonal maintenance or routine pruning for clearance and elevation. Exposed roots on or above the surface displayed signs of mechanical damage due to similar causes as with those previously mentioned.

Random trees in Blue Back Square were evaluated by Root Collar excavation to determine the depth of planting and the soil conditions. Root Collar investigations on Chinese elms were limited to those installed with "flexipave". Two sites were excavated at the root collar for each species of Chinese elm and London Plane Tree. Lateral roots on the London Plane trees examined were found to be an average of 12 to 14" below the soil surface. Lateral roots found during the root collar excavation on the Chinese elms were found to be 8 to 10" below the surface. Additional defects found on the London Plane trees included large areas of mechanical scarring at the soil surface as well as a multiple conflicts or proximity to other infrastructure installed at the root flare.

Introduction

"West Hartford Center," centered on Farmington Avenue and South/North Main Street has been the community's hub since the late 17th century. Blue Back Square opened in 2008 as a new addition to the central area and is situated in close proximity to the Town Hall within walking distance from Town Center. Trees planted along the street provide an aesthetic and welcoming attribute to the area that benefits town and commercial buildings

and the commercial aspects of this area inviting consumers to a pleasant, walkable downtown area.

Assignment

Perform an above ground visual assessment of selected street trees located in West Hartford Town Center and Blue Back Square to determine overall tree condition, relative tree pit data and provide options for design considerations on 3 tree pit alternatives. Perform a root collar excavation on selected trees in Blue Back Square to determine potential cause of failing health and establishment. Provide findings in summative report format with informational reference data.

Limits of the Assignment

A. Provide above ground, non-invasive summative assessment on tree condition; size and relative tree pit size and condition.
B. Perform root collar inspection on selected Chinese elm and London Plane trees located in Blue Back Square.
C. Provide 3 potential tree pit design options that could be considered for potential discussion for implementation.

Purpose & Use of the Report

To provide Richter & Cegan, Inc., with information and recommendations on existing tree condition attributes, tree pit design material and infrastructure considerations that can benefit the longevity of trees planted in the future.

Observations

A. Majority of Honeylocust, (Gleditsia triacanthos) trees located in Town Center are in Fair health condition. Two trees located on Farmington Ave are displaying poor conditions that warrant attention due to dead wood in close proximity to pedestrian traffic.
B. Trees in Town Center average 15" in diameter approaching the limits of the smaller surface openings in tree pit showing edge lifting of pavers, etc.
C. Tree pit size configurations when measured at surface include 3 x 3; 3 x 4, 4 x 4, 5 x 4, 5 x 7, 5 x 8, 6 x 6.
D. Chinese elm, (Ulmus parvifolia) trees located in Blue Back Square are in poor to critical condition.
E. London Plane trees located in Blue Back Square are in poor to critical condition.
F. Mechanical injuries to trunk and stem resulting from sidewalk maintenance, pedestrian activities and pruning.

G. Root and stem decay fungi present on Honeylocust in Town Center. (*Ganoderma lucidum)*
H. Soil compaction evident on all trees located in open pits.
I. Soil moisture evident at surface, not below. Anaerobic conditions present.
J. Cultural practices may contribute to decline by repetitive Annual & Perennial planting in critical root zones.

Site Description

Sidewalks and plaza adjacent to roads and parking areas for area commerce. Heavy pedestrian and vehicular traffic.

Testing & Analysis

Root collar investigation reveals planting depth in London Plane and Chinese elm too deep.

Photo # 1

Photo # 2

Photograph # 1 above showing surface texture with no visible root flare at surface.
Photograph # 2 showing poor condition, limited foliage and healthy buds.

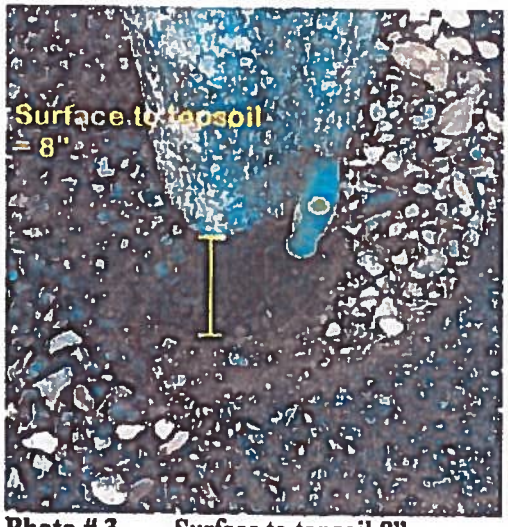

Photo # 3 Surface to topsoil 8"

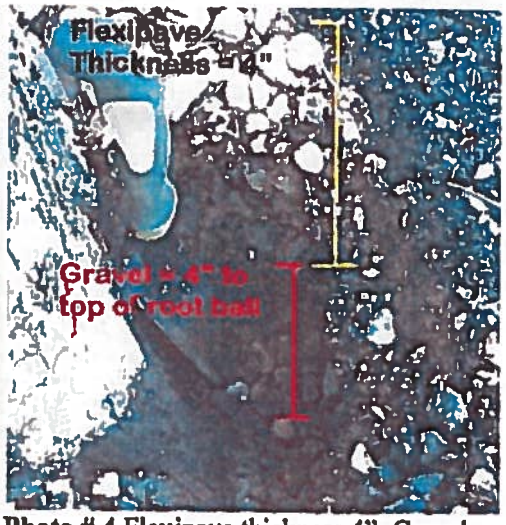

Photo # 4 Flexipave thickness 4"; Gravel Thickness 4 "

Conclusions on Tree Condition

Root collar excavations (RCE) confirm that planting depth in the locations sampled were too deep. London plane trees examined averaged 12" to 14" below surface grade and Chinese elms were found to be 8" to 10" below. Adventitious roots from 1/8 to ½ "were found when performing the RCE on both London Plane trees sampled. This is consistent with the trees attempt to regain access to necessary physiological needs. The size of roots found in this capacity would not be sufficient to sustain this tree over time. Whether the depth of planting was due to "soil subsidence" can not be determined using RCE but this condition can occur when the soil below the installed tree is not sufficiently prepared and the root ball settles resulting in subsidence. Based upon observation of the tree caliper size of the London Plane trees, the root ball at time of planting would be estimated to be from 60" to 72". In order to determine if the soil heterogeneity is a factor, panels in the sidewalk would need to be opened to permit sampling of soils surrounding the planting pit. Poor conditions in both the Chinese elm and the London Plane are consistent with decline due to improper planting depth. Additionally, evidence of vascular damage to the outer and inner bark tissue is evident at the base of London plane trees sampled for RCE. (See Photographs # 5 & # 6 on the following page). The Chinese elms sampled by RCE exposed the profile of the Flexipave. This material was approximately 4" in thickness. Following this layer was a layer of @3/4" crushed stone to a depth of approximately 8". Beyond these two materials lay a sandy mix of soil which may be the material from the nursery. Soil moisture was not measured but soil beneath the mulch in London plane was visibly dry.

Trees sampled in Blue Back Square suffering from decline exhibit signs consistent with planting depth, lack of consistent and adequate moisture and soil compaction. Cultural practices may also be a factor.

Photograph # 5 and 6 above displaying tissue damage at base and close proximity of electrical infrastructure.

Discussion of Tree Pit Options

Quick establishment and long term growth of trees in urban settings is usually limited by the availability of conditions that support growth within the tree planting pit. When the rooting area that trees are subject to adapting to is only the pit that is excavated during planting, chances for success are limited immediately. Differences in soil texture; compaction and amount of organic matter can cause a hydrologic discontinuity, meaning; water may percolate through the root ball but is virtually prevented from moving further in the site soil until the soil surrounding the root ball becomes saturated. When trees are planted in highly disturbed urban soils that are often poorly drained and aerated, low in organic matter and compacted, the trees often fail; some quickly, some several years after planting. Soil volume has a direct impact on establishment and long term growth and is contingent upon a favorable environment that awaits the tree roots beyond the pit. To prepare an adequate environment, one must plan outside the box, or more clearly, beyond the pit to achieve long term benefits. The options that are presented below for review suggest higher volumes of soil at the time of planting. Various methods in the installation can account for higher volumes when variations of depth and width beyond the tree pit opening are supplied with appropriate soils that encourage root expansion. Of course, all other physiological variables such as water and air must be considered and applied as the type of tree pit design allows.